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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,348	01/26/2004	Toshihiko Takasaki	042050	7111

38834 7590 08/17/2005

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EXAMINER

ZEMEL, IRINA SOPHIA

ART UNIT PAPER NUMBER

1711

DATE MAILED: 08/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,348

Applicant(s)

TAKASAKI ET AL.

Examiner

Irina S. Zemel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 11, 14-17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over General Glass (of record).

As discussed in the previous office action, General Glass discloses resins comprising polybenzoxazoles represented by the formula I, wherein X represents a tetravalent group, see abstract. The compounds represented by formula I fully correspond to the polybenzazoles claimed in claims 11, 14-17. Also note illustrative compound Formula 16, which illustrates fluorinated compound that fully corresponds to the claimed polybenzoxazoles. Also as discussed in the previous office action, it is reasonable believed that the disclosed resins inherently exhibit the claimed properties because the disclosed resins are identical in their chemical structures to the resins claimed in claims 11, 14-17. Further, the reference further explicitly teaches that the polymers of the invention are suitable for various applications in the field of electric, electronic and optical components. As suitable for optical applications, the specific applications claimed in all pending claims for the polymers disclosed by Central Glass would have been obvious, since the claimed applications/optical parts are commonly made such optical polymers. See discussion in the previous office action. Moreover, the limitation of the base claim 11 (and dependent claims) to the product being "optical

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waveguide" has little or none structural or otherwise limitation and is met by any thin sheet having minimal transparence characteristics. Since General glass expressly teaches making thin films from the polymers (for measuring physical and electric properties such as for example in [0057], the films will inherently satisfy the "optical waveguide" limitation.

Claims 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over by JP 11-322929 to Toyobo Co LTD., (hereinafter "Toyobo") of record.

As discussed in the previous office action, Toyobo discloses resins comprising polybenzoxazoles represented by the formula I. The Z atom is disclosed in the reference as either sulfur or oxygen. See abstract. Among suitable Ar tetravalent groups, groups of the formula Ar'-X-Ar' are disclosed, for example, in [0009], and hexaluoropropylene is listed as a suitable X group. It is further believed that the properties exhibited by the disclosed polymers fully correspond to the claimed properties due to similarities in structures of the claimed and disclosed polymers. See discussion in the previous office action and applicable discussion above. Furthermore, as per discussion above. Any sheet produced from the disclosed polymers (and having minimal transparency for transmitting ay amount of light) inherently satisfies the limitation of the "optical waveguide". Since the reference expressly discloses films, the limitation to optical waveguide is inherently met by the films. See discussion above.

Claims 11 and 14-18 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,492,996 to Dang et al., (hereinafter "Dang").

As discussed in the previous office action, Dang discloses benzazole polymers represented by the formula in column 2, lines 41-48. Among suitable R linkages, linkages derived from hexafluoropropylene are explicitly listed on line 54 of column 2. Furthermore, the X atom is disclosed as either sulfur or oxygen, see line 49 in column 2. The inventions as claimed in claims 1-6 is, therefore, fully anticipated by Dang. As for the claimed properties of the suitability of the disclosed polymers as optical waveguides – see discussion above. Since the reference expressly discloses films made of the polymer, the intended use (optical waveguide) is inherently met.

Claims 11, 14-16 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,498,784 to Arnold et al., (hereinafter "Arnold").

Arnold discloses polybenzoxazoles having repeat units represented by the formula disclosed in line 50 of column 2. (See applicable arguments regarding the properties and the use as waveguides above).

Claims 1-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over by US Patent 6,204,356 to Saito et al., (hereinafter "Saito").

As per discussion in the previous office action, Saito discloses resins comprising polybenzoxazoles represented by the formulas (D) see column 2, formulas (F) –(L), see illustrative examples 1-5 and comparative examples 1 and 2, etc. All of these formulas fully correspond to the polybenzazoles claimed in claims 11 and 4, and compounds of formulas (G), (H), (I), (K) and (L) correspond to the claimed fluoro-containing benzoxazoles as per claims 15-17. As for claims 16-17, see discussion of the "product-by-process" format, above and in the previous office action (Furthermore,

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the products disclosed, for example, in comparative examples 1 and 2 are obtained by the claimed process, as well). Also see discussion of the properties limitations of claims 19-22 as discussed for claims 8-10 in the previous office action and above.

The reference further explicitly discloses that n (or degree of polymerization or number of repeat units) is from 2 to 1000, which overlaps with the claimed range as per claim 18.

As for the claim limitation of "optical waveguide", the reference expressly discloses thin films obtained from the disclosed compositions (see for example, illustrative example 1), the claimed limitation is inherently met by the thin transparent films disclosed in the reference. See discussion above.

Response to Arguments

Applicant's arguments filed 5-31-2005 have been fully considered but they are not persuasive. The applicants argue that the polymers disclosed by General Glass are prepared for application of semiconductor parts that require specific characteristics, such as low thermal expansion and low dielectric constant while polymers for optical waveguide require excellent transparency. First of all, it is not seen how the properties required for semiconductor parts and optical waveguides are mutually exclusive, and it is believed that the polymers can exhibit characteristics suitable for both applications at the same time. Second of all, the examiner discussed in the previous office action that it is reasonable believed that the disclosed polymers satisfy the claimed characteristics based on close similarity of the disclosed and the claimed polymers and shifted burden to the applicants to provide **factual** evidence to the contrary. In reply, the applicants

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merely state that "[I]t is considered that the disclosed polybenzoxazole is not transparent to the extent that it can be used as a resin for the optical waveguide, because Central Glass merely suggests that the disclosed polybenzoxazole can be used as an insulating material of electrical and electronic components and as a coating material of optical components." This statement lacks any factual evidence supporting the conclusion that the disclosed polymers, in fact, do not exhibit minimal transparenence necessary for guiding lights. Simply because a property or an applications is not disclosed in the references, it does not mean that the property is not exhibited by the product or the product is not useful for the intended use. Thus, the applicants did not meet their burden to provide factual evidence that the properties of the disclosed polymers are difference from the claimed properties or that the polymers are unsuitable for the untended use as optical waveguide.

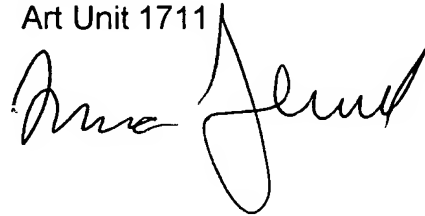
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irina S. Zemel
Examiner
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A handwritten signature in black ink, appearing to read 'Irina Zemel', written over the printed name and title.

ISZ